**Intracellular mechanochemical waves in a model of active poroelastic media**

*Sergio Alonso* [1], *Markus Radszuweit* [1,2], *Harald Engel* [2], *Markus Bär* [1]
[1]Physikalisch-Technische Bundesanstalt, Abbestrasse 2-12, 10587 Berlin, Germany
[2]Technische Universitat Berlin, Institute for Theoretical Physics, Hardenberstr. 36, 10623 Berlin, Germany

Many processes in living cells are controlled by biochemical substances regulating active stresses. Intracellular pattern formation have recently been derived that include active mechanical forces and the resulting advection processes [1]. The cytoplasm is an active material with both viscoelastic and liquid properties. We incorporate the active stress into a two-phase model of the cytoplasm which accounts for the spatiotemporal dynamics of the cytoskeleton and the cytosol. The cytoskeleton is described as a solid matrix that together with the cytosol as interstitial fluid constitutes a poroelastic material. We find different forms of mechanochemical waves including traveling, standing and rotating waves by employing linear stability analysis and numerical simulations [2]. This simple poroelastic model may be extended to describe diverse cellular phenomena happening at sufficiently short time scales, e.g., amoeboid reorganization or local deformations on protoplasmic droplets of Physarum polycephalum [3].

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